

# Car Movement & Traffic Management System 4 For Trainz 2010/12

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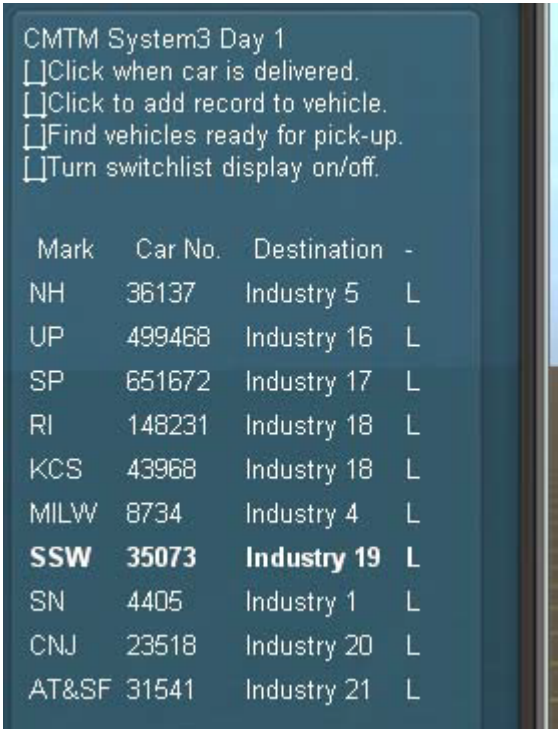
## What is new in System4

The only change in System4 is how it is implemented. System4 now installs as a session Rule. The CMTM data is stored in an HTML asset. This HTML asset will also contain any HTML data that is specific to the session. No changes need to be made to the CMTMSystem4 or CMTMSystem4 Portal assets.

## Introduction

The Car Movement & Traffic Management System (CMTM System) is designed to simulate prototype freight traffic patterns and operations in Trainz by providing each freight car on the route a series of destinations that represent freight car movements in prototype operations. The System supports small operations and brief sessions or can be used for large routes and multiple days of operations where each day, different consists will arrive on the route to simulate differences in traffic patterns and intensity. Implementing this system on a small route for a short session may only take an hour or two. For a large route and multi-day sessions, it is labor intensive to get up and running and is not for the faint of heart. Think of it as an automated car-card system on steroids.

This system does not make use of the Trainz built-in Waybill system. Interactive Industries are not required. This system changes the flavor of Trainz from a simplistic computer game to complex, prototype operations. It allows you to pick up cars at industries and bring them to a yard where they can be sorted and made into trains and not loose track of where each car is supposed to go. Much like is found in the real world of trains.

 <p>CMTM System3 Day 1</p> <p><input type="checkbox"/> Click when car is delivered.</p> <p><input type="checkbox"/> Click to add record to vehicle.</p> <p><input type="checkbox"/> Find vehicles ready for pick-up.</p> <p><input type="checkbox"/> Turn switchlist display on/off.</p> <table><thead><tr><th>Mark</th><th>Car No.</th><th>Destination</th><th></th></tr></thead><tbody><tr><td>NH</td><td>36137</td><td>Industry 5</td><td>L</td></tr><tr><td>UP</td><td>499468</td><td>Industry 16</td><td>L</td></tr><tr><td>SP</td><td>651672</td><td>Industry 17</td><td>L</td></tr><tr><td>RI</td><td>148231</td><td>Industry 18</td><td>L</td></tr><tr><td>KCS</td><td>43968</td><td>Industry 18</td><td>L</td></tr><tr><td>MILW</td><td>8734</td><td>Industry 4</td><td>L</td></tr><tr><td><b>SSW</b></td><td><b>35073</b></td><td><b>Industry 19</b></td><td><b>L</b></td></tr><tr><td>SN</td><td>4405</td><td>Industry 1</td><td>L</td></tr><tr><td>CNJ</td><td>23518</td><td>Industry 20</td><td>L</td></tr><tr><td>AT&amp;SF</td><td>31541</td><td>Industry 21</td><td>L</td></tr></tbody></table>	Mark	Car No.	Destination		NH	36137	Industry 5	L	UP	499468	Industry 16	L	SP	651672	Industry 17	L	RI	148231	Industry 18	L	KCS	43968	Industry 18	L	MILW	8734	Industry 4	L	<b>SSW</b>	<b>35073</b>	<b>Industry 19</b>	<b>L</b>	SN	4405	Industry 1	L	CNJ	23518	Industry 20	L	AT&SF	31541	Industry 21	L	<p>Car is delivered - notifies database of time delivered. It will be marked ready for pick-up when the time has expired.</p> <p>Add record to vehicle - used when pulling a car into service from an empty car storage track</p> <p>Vehicles ready for pick-up - presents a list of vehicles and their locations that have completed their load/unload times. Clicking on a listed vehicle name will take you to that vehicle.</p> <p>Switchlist on/off - toggles window to display single car on which camera is focused or to display entire contents of train.</p>
Mark	Car No.	Destination																																											
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Here is the heart of the system - the switch list window. It lists all the cars in the train or string of cars on which the camera is focused. The car on which the camera is focused is in **bold type**. Shown are the reporting marks, the car number, the destination and the load status (L for loaded, U for unloaded). The individual car data is available anytime you click on that car or the train or car string in which it exists. The user options at the top of the window are described above on the right.

## **Trainz Route Requirements**

To use the CMTM System<sup>4</sup>, your route needs to be a TRS2010 or later route. You do not need to use portals, but if you do, I recommend pguy's Quick Portal Manager V3 to manage all your portals. Any portal that emits freight trains you want to be included in the CMTM system must be a CMTM Portal. If you are planning to have multiple day operations, you will also need to install rules Quick Drive V2, Global Consist Library V2 and Consist Data Handler Rule V2 to make full use of the multiple days feature.

The CMTM System assumes that your route has at least one industry to service. If you have portals, they usually represent either the continuation of your railroad (home road) or an interchange with another railroad (foreign road). See Appendix A for a discussion of interchange operations. Your Trainz route can be just one industry on a railroad with a portal to the rest of the world, or a complete railroad with multiple towns and interchanges to foreign roads, or anything in between.

Industries used in this system do not have to be interactive. Any spot on any spur or side track can be an industry or destination for a freight car. It is recommended that some type of structure be placed at the location so the location can be readily recognized. A track mark also must be placed at the destination location. This will make all industries visible on the Trainz Mini-map. The track mark name must match the name used in the CMTM database.

## **Commodity Enabled Cars**

Freight cars used with CMTM are not required to be commodity enabled, but it does make for more realistic operations if they are. When commodities are loaded in a car, it makes for a heavier car and will change the train dynamics. An SW7 Switch Engine can easily handle a string of 30 empties, but will really struggle to move them when they are loaded. The CMTM window will still say that a car is loaded, even if it is not commodity enabled.

The CMTM system does not deal with "Commodities" or the built in "Way Bill" system. If you are using the CMTM System, the built-in "Commodities" and "Way Bill" features should be completely ignored.

## **Interfacing with Freight Cars**

CMTM uses three pieces of data found in each cars config.txt file. The first item is the cars "category-class". The category-class code is a standardized system for referring to the various types of assets. A complete listing for freight cars can be found in Appendix B of this document. (I was surprised that some of the vehicles on the DLS do not have the correct category-class.) The category-class for a freight car begins with an X, followed by one or two letters that determine the type of freight car. The CMTM system relies on these codes for proper identification of car types. If you find a car that you want to use that has the wrong category-class code, you will have to make a correction in the cars config file.

The next two items are the reporting mark and the car number. As of this writing, over 1,200 of majekear's auto-numbered freight cars have these items in the config file. Other car makers are committed to including them in their creations. If you want to use cars that do not have these yet, you can add them to the cars config file extensions container. If your car does not have an extensions container, you can add it like this.

```
extensions
{
reportingmark-32711      "C&NW"
carnumber-32711        "1234" or "x"
}
```

reportingmark is the reporting mark as visible on the outside of the car. This is usually the initials of the owning or leasing company shown directly above the car number. This reporting mark should be exactly what is seen when the car is viewed on the screen in either Surveyor, Driver, Meshviewer or any other program. Do not enter any other data in this tag.

carnumber is the number on the car usually directly below the reporting mark as seen on the outside of the car when view on the screen in either Surveyor, Driver, Meshviewer or any other program. If an automatic numbering system is used such as NumberIt or ARN, enter an x in this tag. Do not enter any other data in this tag.

The CMTM system relies on the “reportingmarks” tag to determine if a vehicle is a home road vehicle or a vehicle leased for home road use. This data is also used in the window that displays the destination data for each car. Reporting marks can include upper and lower case and the “&” symbol.

If the vehicle uses an automatic car numbering system, CMTM will display the number assigned to that car.

### CMTM System 4 Overview

CMTM stands for Car Movement and Traffic Management. The Car Movement portion of this system is what directs the flow of local traffic, advising the player the destination for any freight car.

The Traffic Management portion determines the over all flow of through traffic. Through traffic is usually portal to portal traffic, but not always straight thru on the same train. Consider a route with three portals. A train arriving from portal 1 may have some local traffic, some for portal 2 and some for portal 3. This will require some yard activity to get the cars to their correct portal. CMTM allows you to control the ratio of cars that upon arriving from portal 1 go to portal 2 and portal 3.

### **The Database**

The CMTM System consists of a database. This database is made up of records. Each record defines the movements for one freight car. The data record is “attached” to a car and the data in that record is accessed and displayed in a pop-up window in Driver when a left mouse click is executed on that car. This database, made up of car movement records is contained in the sessions HTML-asset config.txt file extensions container. Each line in the cmtmdata-soup that begins with cmtm is a car movement record. Each record is made up of data fields with each field containing a specific piece of data. The first five data fields define the car and when and where it will be used. The additional fields are grouped in clusters of four fields. Each four field cluster defines a destination for the car. Each record can have as many destinations for its car as needed.

Although on first glance, all the “records” look alike, there are three types of records, “Thru” record, “Local” record and “ECS” record.

**Thru record** - By definition, those records whose first destination is a portal are called “**Thru**” records and are used to manage the flow of portal to portal thru traffic.

**Local record** - Those records that have more than one destination or their first destination is an ECS track are “**Local**” records. These define the movements of cars that have at least one destination on your railroad.

**ECS Record** - Those records whose beginning location is an Empty Car Storage Track are called “**ECS**” records. These records will be manually added to cars setting on an ECS track during the session.

Each record starts with the “days” field which determines the days of the week the record will be active. The second field defines the beginning location for other than session start-up. Next two are the car type and reporting mark fields. The fifth field is the “train name/local track” field. The rest of the fields, In groupings of four define the various destinations.

cmtm124 “12xx56x,PortalEast,XTM,x,102,Jones Fuel Distributor,load,gasoline,12,PortalEast,empty,x,x”

```

-----
Record      days active |      |      |      |      |      |      |      |      |      |
Number      |      |      |      |      |      |      |      |      |      |
Beginning location ----- | ----- Cars reporting mark
                        Car type -----

```

**How Records are Assigned at Start-up**

When a session starts, the CMTM System assigns a record to each freight car on the route except those setting on an ECS track. The cars not on an ECS track will be assigned either a **Local** record or a **Thru** record. If you want a car to receive a **Local** record, the car must be located on a track with a track mark and that track mark must be listed in the extensions table as a local-track. This track mark name must also be listed in the record intended for that car in the “train-name/local track“ data field.

Freight cars that are on a Local track but do not have a record specific to that Local track and cars that are on tracks that are not identified as Local and will be assigned a **Thru** record (with a first destination a portal).

**How Records are Assigned when Train is Emitted from a Portal**

When a train arrives on the route via a CMTM portal, every freight car in the train will be assigned a record. Only those records that list the portal as the beginning location will be used for that portal. The order of assignment is **Local** records first, then **Thru** records.

There are three levels of restriction for these assignments. The most restrictive search is a train name and a mission code listed in the Quick Portal Manager. For this level, both **Local** and **Thru** records need to have the train name listed in the “train name/track name” field.

The less restrictive level for assignment is a train name, but no mission code listed in the Portal Controller. For this level, only **Local** records need the train name. **Thru** records specific to the emitting portal will be used that do not specify a train name.

The least restrictive is train name listed as “x” in the Quick Portal Manager. The records used for these trains will be those that do not have a train name in the “train name/track name” field.

The assignment process used by CMTM as the cars are emitted is to assign **Local** records first. This is where the category-class is used to make sure the correct type of car is sent to an industry. This is also where the Company tag comes into play. Some of the Car Movement records route empty home road or leased cars to an Empty Car Storage track. In these cases, it is important to make sure the reporting mark is correct.

You have no direct control over which record gets assigned to which car other than they are used in the order listed in the database and the records are matched according to the car type (category-class). Any car that meets the type can be used. A 60ft metal boxcar or a 34ft wooden boxcar will be used interchangeably by the software.

Each **Local** record is assigned only once for each day is it valid. If the record contains a train name, that **Local** record will be used once only for the train that has a matching name.

Once all the appropriate **Local** records have been assigned to the available cars in the emitted train, each of the remaining cars are assigned a **Thru** record. If you have a 20 car train emitted from a portal and 4 of the cars meet the criteria needed to match the **Local** records for the emitting portal, the remaining cars are assigned **Thru** records for that portal. These **Thru** records are used repeatedly, train after train. If the train has a mission code other than “x”, only **Thru** records with the train name will be assigned and these **Thru** records will not be used for any other trains. **Note:** Each portal needs at least 2 thru records for that portal. If you are using train names, each named train needs two thru records for each portal from which it may be emitted.

### Checking on Cars

The destination data for any car is displayed in the CMTM Data pop-up window by a left mouse click on that car. This will focus the camera on that car, which makes it nice for switching moves. This window lists’ the reporting marks, number, destination and load status for every car in the train. The vehicle on which the camera is focused is listed in **bold** type. The window may be closed by pressing ESC. It will open again when another car is left mouse clicked.

### Destination Check

CMTM has an option called Destination Check. If activated, and you try to deliver a car to the wrong destination, it will print a message on the message board that says “Car not at proper location”. If it is at the proper location it adds a value of 1 to a variable called “deliverscore”. This feature can be set in the extensions table and can be used to create sessions that keep score of proper deliveries.

### New Destinations

As the session progresses, cars get delivered to their destinations. When a car is delivered to its destination, it needs to be noted by clicking on the delivered box in the CMTM Data window. The Trainz message board will give you a message that the delivery has been noted.

The information in the CMTM Data window is updated only when there is a change in the focus of the camera. So, once you have noted delivery, click on another car, then back to the car you have just noted delivered. You will then see how much time is left before the car can be moved to its next destination. Once this time has elapsed and you click on the car, the new destination will appear in the window. If you move the car before its load/unload time has expired, The timer will stop and the cars destination will revert to the current location. When you set the car back at its delivery location, you must note it as being delivered once again. The timer will start from where it left off and once the load/unload time has expired, the car’s new destination will be displayed. Also, the cars load status will be updated with visible loads either loaded or unloaded.

When a car has past its load/unload time, it is listed as ready for pick-up. The Ready For Pick-up list can be accessed from the CMTM Data Window by clicking on Find Vehicles Ready for Pick-up. This will open a new window that lists those cars. Clicking on a listed car will take you to that car. Once a car is coupled to, it is removed from this list.

## **Continuous Running**

CMTM System3 will run continuously, day after day as long as you want to run. Sessions may be saved and restarted exactly where you left off.

The CMTM System3 does not plan your operations. That is up to you. I discuss some operations on page 18. There are many resources for designing and planning operations. In my humble opinion, the best being [www.OPSIG.ORG](http://www.OPSIG.ORG)

## **Planning a Session for CMTM**

### **Multiple Destinations**

While most car movements are from a portal or ECS to industry to off-route destination, there are other moves that can make operations more interesting. A non-mechanical reefer has to go to the ice-house first, then to the loading industry, then to it's destination. Some cars may need to be weighed after they are loaded and before they are put into a train to leave town. Do you have a scale track in your yard? Some cars will need to go to a clean-out track preferably before they go to an ECS track . How about a RIP (Repair In Place) track? Throw in a record or two each day to have a car repaired. It can be a loaded or empty car, in through or local service.

If you have a specific car movement sequence that requires more moves, just add additional sets of four fields as needed. LCL service (less than carload) has been implemented on the Huron Central. Each way-freight has a box car that is set out at the freight depot when it arrives at each town and is picked up before leaving town. The load/unload time is set to zero for these moves. When it arrives back in Huron, it's destination is the freight depot with a 1 hour load/unload time, then it's destination is PortalEast. This movement record has 9 destinations.

### **Traffic Management**

Now we look at the Traffic Management portion of this system. This involves the through freight traffic. Through traffic arrives on the route via a Portal and leaves via another Portal with no delivery to a local industry. To start this process, a traffic plan needs to be formulated.

Here is an example for a route that has an East-west mainline with a branch line headed south. This route also interchanges traffic with the CNW and the CGW. The following percentages are for through traffic and does not include traffic to local industries.

Trains from the west - 70% of cars go to PortalEast, 20% to PortalSouth, 5% to CGW and 5% to CNW.

Trains from the east - 75% of cars go to PortalWest, 5% to PortalSouth, 10% to CGW and 10% to CNW

Trains from the south - 80% of cars go to PortalWest, 15% to CGW and 5% to CNW

Trains from CGW - 40% of cars go to PortalWest, 30% to PortalSouth, 20% to PortalEast and 10% to CNW

Trains from CNW - 50% of cars go to PortalSouth, 40% to PortalWest, 10% to CGW

These traffic patterns are created by entering the appropriate number of records into the Movement Records Spreadsheet that reflect these ratios. To maintain these ratios for 7 days of the week, create the following records with all days selected.

For the west portal, make twenty records with the PortalWest as the beginning Location. Of these twenty records, make the Destination 1 field of 14 of these records PortalEast (70% x 20 records = 14 cars), 4 to Portal South (20% x 20 records = 4 cars), one to PortalCGW (5% x 20 records = 1 car) and one to PortalCNW. As multiple trains



arrive on the route, these records will be used again and again, maintaining the desired traffic ratios. Use this method for creating the records for the other portals. Daily patterns can be changed by making more records specific to days you want to change.

Some trains may not carry general freight but are specific to a certain destination or a specific commodity. For these trains, you may not want to have the above percentages of traffic divided between the other portals. In these cases, give the train a “mission code” such as hotshot or reefer special. If you are running such a train, you must enter the mission code for the train in the QuickPortalManagerV3. If all the cars in the train have the same destination portal, you will need only two thru records with the train name in the train name field.

### **Home road and leased train car empties**

Most industries will use box cars, gons, hoppers or flats, but some industries require more specialized cars or may have their own. For instance, a packing plant may have its own fleet of reefers or a refinery will lease cars from GATX. When these come onto the route as empties, they may be sent directly to an industry, or they can be sent to an Empty Car Storage track (ECS). To make this happen, make sure that the car’s config.txt file “reporting marks” is exactly the same as used in the CMTM Database.

### **Labeling Standards**

There are several planning tasks that are done independent of Trainz. The first is to create a labeling method or standard to identify industries and portals so that locations to which cars will be moved can be quickly and intuitively found by the Driver. Keep in mind that some industries have multiple tracks and multiple spots on those tracks at which a freight car might be placed.

Your method will depend on the size of your route. CMTM has been adapted to a one baseboard route with two thru traffic portals, one interchange portal and 10 industries. On a route this small, only the industry names were used to identify car destinations.

On larger routes, a town designator and/or routing information may be added to the destination. If you are going to use Destination Check on your route, structure your destinations as follows: *destination\_routing\_train*. The destination MUST be first (spelled exactly as the track marks that define each destination), followed by an underscore “\_” followed by any routing and/or train information. Routing information may include a yard in which the car will be put into a train for delivery, or it could be a specific train or both.

CMTM has also been adapted to a large route, with 20 towns (stations), three through traffic portals, two interchange portals, 65 industries and nearly 100 different places to deliver a freight car. On this route, destinations were identified by a letter-number code and the industry name with a spot location letter if needed. This route has a centrally located station as the division headquarters (DHQ). All other stations are noted E(east), W(west), or N(north) from DHQ followed by a number that denotes the order from DHQ. Tracy is the 4th station east of DHQ thus, the designator for that station is E4. This notation makes it easy to get the cars blocked and in proper order for efficient delivery when making up trains. Example: a car of pig iron destined for Quinn Foundry in Tracy will have a destination of E4 Quinn Foundry A1 (pig iron and scrap metal go on track A, spot 1, coke, sand and other foundry supplies go to track A, spot2, finished goods are shipped from track B). This route does not use any routing or train specifications.

Another large route contains three yards. Each yard is responsible for making up trains that will deliver to specific industries. For this route, the destinations also contain routing and occasionally some train info. For instance, the town of Longview is situated between Bozeman yard and Pickard Yard. Since all deliveries are to be made as trailing point moves, some cars destined for Longview must be routed through Bozeman Yard and some cars must

be routed through Pickard yard. On this route, each town has a two letter designator and each towns industries are numbered, so a destination in Longview would be LV7\_Pic\_WB. LV7 is the name used on the track mark at industry 7 in Longview. Pic is Pickard Yard and WB defines a westbound train.

There is no right or wrong way to identify your destinations, just do what works for you. If you intend to share your route with others, try to make it easy to understand.

CMTM has two ironclad labeling standards. The first six letters of every portal name must be Portal. ie: PortalWest, PortalChicago, PortalCBQ. Do Not use non-text characters in Portal Names such as & or \_ or #.

ECS track names must begin with the letters ECS and all letters must be caps.

**Industry Analysis**

The Car Movement portion of this system directs cars to and from industries. To begin this process, determine the traffic generated by each industry. Analyze one industry at a time. Begin by noting the incoming shipments first. Then identify the outgoing shipments.

NOTE: The CMTM System is designed to accommodate sequential days of operations that repeat weekly (after seven days). To get the maximum variety of operations, it is recommended that you plan your operations based on multiple days. Each day can have a different level of traffic. You can schedule trains for specific days of the week, such as a local that runs only on Tuesday and Friday. When the session begins, you are asked to select a day for operations. The day selected determines which movement records will be used by the system to begin the session. If you continue to operate into the next day, the system will start using the next days records shortly after the stroke of midnight.

**Industry Analysis Worksheet**

Here is a sample format for a worksheet I use to create the Industry Analysis. I just do this on a lined yellow tablet. I put the heading on the first page, and after that it just comes natural.

Industry Name

---

Input Product	Car Type	Car comes From	Unload Time	Car goes To	Days

Output Product	Car Type	Car comes From	Load Time	Car goes To	Days

## Sample Industry Analysis

Here is an example industry analysis for Quinn Foundry. The town designation is E4 (4<sup>th</sup> town east of division headquarters)

E4 Quinn Foundry A1 (E4 - destination station, Quinn Foundry - industry, A - track, 1 - spot)

Input - pig-iron - Gondola from PortalEast takes 16 hrs to unload then return empty to PortalEast - day 1

Input - scrap metal - Gondola from PortalWest takes 12 hrs to unload - return empty to PortalWest - day 3

E4 Quinn Foundry A2

Input - sand - Boxcar from PortalNorth takes 8 hrs to unload then return empty to PortalNorth - day 2

Input - coke - boxcar from PortalSoo takes 8 hrs to unload - return empty to PortalSoo - day 4

E4 Quinn Foundry B2

Output - castings - empty boxcar from ECS-HURON, 8 hrs to load - to PortalWest - days 1,3

Output - castings - empty boxcar from ECS-HURON, 8 hrs to load - PortalCMSTP - day 4

Output - castings - empty boxcar from ECS-HURON, 8 hrs to load - PortalNorth - day 5

Output - castings - empty boxcar from ECS-HURON, 8 hrs to load - N1 Ideal Mfg Co - ECS-Huron day 2

We also need three car movements to bring home the cars from the first three records that sent loaded cars off route.

empty home road boxcar from PortalWest to ECS HURON - days 5,7

empty home road boxcar from PortalCMSTP to ECS HURON - day 1

empty home road boxcar from PortalNorth to ECS HURON - day 2

Notes:

1. This example route has three thru portals (PortalNorth, PortalEast, PortalWest, and two interchange portals, PortalCMSTP and PortalSoo).
2. Empty home road cars are stored on an ECS (empty car storage) track. There is one located in Huron, hence ECS HURON as the beginning location of the output traffic and the destination of returned empties.
3. The boxcar going out on day 2 goes to an industry on the route, Ideal Mfg at station N1, and after it is unloaded there, it goes to the empty car storage track in Huron.

## Product List

As you progress through your various industries, make a list of the various products that will be needed by the local industries. Structure the list with the name in the first column and the kuid for that product in the second column. The name does not have to be the exact name given to the product by the creator. Use one that works for you. Just make sure you spell it the same every time it is used and DO NOT use the underscore character “\_”. This will eventually become part of the kuid-table in your HTML-asset config file. This list can be created as you do the industry analysis as described in this section. (I always list them in alphabetical order. It makes it much easier to find things.)

## Details of Database Fields

The database has a specific structure that must be followed. The database is made up of records and each record is made up of fields.

The first six fields define the 1)record number, 2)days the record is active, 3)the beginning location, 4)car type, 5)the car company and 6)the train name on which it will arrive. The remaining fields define the cars movements. Each movement is defined by 4 fields. You can have as many movements as you choose. The last movement should be either to a portal or an ECS track.

Each field is defined in detail below.

**Record Number** Each line represents a data record, the numbering starts with the letters cmtm followed by a sequential number, starting with 0. (This field becomes the tag name in the data-soup.)

**Days Active** This field defines the days that this record will be actively used. There are 7 days available. To be active, numbers 1 - 7 must be included in the field in numerical order. If the record is to be inactive on a specific day, enter an x in place of that day's number. Make sure there are NO COMMAS separating the numbers and x's when entered in the database. Example: 12x45xx represents days 1,2,4 and 5

**Beginning Location** This field is the name of the portal from which the car enters the railroad OR the Empty Car Storage track from which it begins its journey. If it is a Portal, the name must begin with "Portal" followed by a unique identifier such as "PortalWest". This must be the EXACT name given to the portal in Surveyor. If it is an Empty Car Storage track, the name must start with the prefix "ECS" followed by a unique identifier such as ECS HURON. This must be the EXACT name given to the ECS track marker in Surveyor. This name must be all CAPS.

**Car Type** This is a two or three letter code in CAPS that specifies the type of car. The first letter is always "X". See Appendix B of this document for a complete listing of freight car types. Most cars available on the Download Station have this field correctly filled in. It can be found in each freight car's config.txt file as "category-class". (The only problem I have encountered is XB and XBG. XB is for Box Car/covered van while XBG is box car/covered van for general service. Most of the box cars I have encountered use XBG but there is an occasional XB, which when targeted for local service, can present a problem. Just make sure all box cars that you use have "category-class" set to whatever you enter into the database.)

**Company** This field defines the company that owns or leases the car. This is used to get the appropriate cars routed to the Empty Car Storage tracks or to the correct industry as an empty. All records for cars bound for the Empty Car Storage track must have data in this field. The company name must be exactly that used in the "reportingmarks" line of the config.txt file of the intended car. If this field is not used, enter an x.

Note: You can use other names than your railroad name. For example, if you have an IBP packing plant that uses their own private cars, they can be identified and routed to the appropriate ECS track as long as you have the reporting marks, "IBPX" in the database that matches the "IBPX" in the cars config files "reportingmarks-32711" tag..

**Train Name/LocalTrack** If you want this record to apply to a car on a specific track on session start-up, enter the track mark name for that specific track. It must match exactly the track mark name. If there is no car of the specified type on the named track, this record will not be used.

If you want this record to apply to a car that will be in a specific train that is emitted from a portal, enter that train name here, It must match exactly the train name entered in the Quick Portal Manager. If there is no car of the specified type in the named train, this record will not be used.

If no train name or track name is desired, enter an “x” in this field. This record will then be used in sequential order with other no-name records for trains emitted from the Portal listed in the Beginning Location field.

-----  
**Destination 1** Destination 1 - specific location to which the car is to be delivered. This can be an Empty Car Storage (ECS) track, a Portal or an industry. If you plan on using the Destination Check feature, your local destination names must exactly match the track mark names you have used on your route.

You may include routing information in the destination by using an underscore \_ to separate it from the destination. For example, a car should be routed to a specific yard before it is delivered to this destination. You can add the yard designation to the destination by proceeding it with a \_ . For example Industry12\_WY. This car gets routed to West Yard (WY), where it will be put into a train for delivery to Industry12. Make sure you use “\_” with no spaces. The Destination MUST be listed first, followed by a \_ and then the routing information.

**Dest 1 Load Status** “empty” or “load” to indicate the car’s status on its way to this destination. This will change the mass of the vehicle for train dynamics and make the load visible on open cars.

**Destination 1 Product** If this leg of the journey is **empty**, you need an “x” in this field.

This field defines the product to be **loaded** for this leg of its journey. If you place an “x” in this field, the car will be randomly loaded with whatever the car is set-up to carry. If you place the name of a product from your product table (see page 14 ), that product will be loaded into the car.

You can also specify the size of the queue required to carry the commodity by appending the product name as found in your kuid table with an underscore “\_” and a number. This is important for visible load carss such as flats and gons. For example, if you are loading a tractors and 3 tractors will fit onto the car and the name of the commodity is JohDeerTractor, enter JohnDeereTractor\_3 in this data field. When the car is loaded, it will show three JohnDeere tractors. You must be sure that the car you are using has a queue with the capacity that matches your number. Do Not Use the underscore character in any of your product names in the kuid table - only use the underscore and number in this field to specify queue size..

**Destination 1 Time** Defines the time in hours that the car takes to be loaded or unloaded. Minimum = 0, Max = 99.

-----  
The following fields are defined as above

**Destination 2**  
**Dest 2 load status**  
**Destination 2 Product**  
**Destination 2 Time**

-----  
**Destination 3**  
**Dest 3 load status**  
**Destination 3 Product**  
**Destination 3 Time**

-----  
**Destination 4**  
**Dest 4 load status**  
**Destination 4 Product**  
**Destination 4 Time**

**VERY IMPORTANT - ALL FIELDS THAT HAVE NO DATA MUST BE FILLED IN WITH “x”.**

**ALL RECORDS MUST HAVE EITHER DATA OR AN “x” IN THE FIRST 13 FIELDS**

### Creating the CMTM database on a spreadsheet

Once you have the above analysis of each industry, you can begin to create the CMTM Database. It is recommended that the data be entered into a spreadsheet first, and later converted to an all text file in the correct data-soup format. Creating the database using a spreadsheet allows you enter the data by industry and then sort it as needed. For example, sorting by beginning location will tell you how many empty cars of each type you will need to have on your ECS tracks, or how many of different car types will need to be included in trains emitted by a specific Portal. More on this later.

Microsoft Access or some other database software could be used to create the database.

If you are using a spreadsheet, label the columns as follows: cmtm number, 1, 2, 3, 4, 5, 6, 7, begin location, car type, company, train name, destination1, dest1 load stat, dest1 product, dest1 time, destination2, dest2 load stat, dest2 product, dest2 time,

These columns will take care of most of the records.

Using your Industry Analysis worksheets, start entering your records. If your spreadsheet has auto number, use it for coulmn1. Do not worry about the cmtm prefix at this time. You should also have a separate column for each day of the week. If the record is valid for a given day, enter the day's number in that column. If the record is not used on a given day, enter an x in that column. (This will allow us to later, sort the data by day.)

Enter the rest of the data for the record. If there is no data for a given field, enter an x. After you have a few records entered, you will be able to copy and paste parts of previous records to make new records.

There need to be records that address five different situations.

1. Local records - these records will be attached to cars that arrive via a portal and have a local destination. The bulk of your records will be of this type
2. ECS and Return records - ECS records get attached to a car by the player.
3. Return records - these records will be attached to cars that arrive via a portal and will have a single destination - an ECS track.
4. Thru records - will be attached to cars that arrive via a portal and have only one destination - another portal. These records are used to manage the balance of thru traffic. **Note:** Each portal needs at least 2 thru records for that portal. If you are using train names, each named train needs two thru records for each portal from which it may be emitted.
5. Car on route at beginning - these records should be active for each day of the week. They will be used when the session is first started. They will have the local track mark name in the Train Name field.

I like to put the Local, ECS and Return records on the spreadsheet first. Once you have them, I save a copy for sorting, and then I complete the master with the rest of the Thru records and the Car on Route records.

## Sorting the spreadsheet

With proper sorting of the spreadsheet, you can see at a glance the car requirements of the consists that will be emitted from the portals.

With the sortable copy loaded, delete all columns to the right of column 15. This should leave the following columns:

- Record number
- Days 1,2,3,4,5,6 & 7
- Beginning Location
- Car Type
- Company
- Train Name/Local Track
- Destination 1
- Load Status 1
- Product 1

Now sort the entire spreadsheet by three criteria - criteria 1 - Day1, criteria 2 - Beginning Location, criteria 3 - Train Name.

With this sort, highlight and copy all the records with a 1 in Day1 column. Then open a new spreadsheet and paste the copied rows into this new spreadsheet. Save this as Day1.

Go back to the sortable spreadsheet and resort using the cmtm number column (column1). Then resort entire spreadsheet by three criteria - criteria 1 - Day2, criteria 2 - Beginning Location, criteria 3 - Train Name.

With this sort, highlight and copy all the records with a 2 in Day2 column. Then open a new spreadsheet and paste the copied rows into this new spreadsheet. Save this as Day2.

Repeat these steps for days 3 through 7. You should now have 7 spreadsheets saved.

Edit each days spreadsheet. Remove the day columns other than the current day. Adjust the column widths to get as much info printed on a page as possible and print the spreadsheet. I call these printouts the **Daily Portal Traffic Report**.

When placing cars on the ECS tracks or when making up consists for each portal, use these sheets as a guide as to how many of each type car will be need. As you make up the consists, the cars do not need to be ordered as shown in the spreadsheet.

## Creating CMTMData-Soup-32711

I find that ConText is the best text editor to use for working with computer code of any type. It is available for free online. <http://www.contexteditor.org/> . There are filters available for Context that color code the text in Trainz files. Here is the document that tells you how to set-up ConText for Trainz.

[http://online.ts2009.com/mediaWiki/index.php5/Using\\_Context\\_with\\_Trainzscript](http://online.ts2009.com/mediaWiki/index.php5/Using_Context_with_Trainzscript)

If you are using ConText, go back to your spreadsheet application and load the master copy. Highlight the complete spreadsheet, copy and paste it into Context.

It looks like a mess, but with some help from ConText macro's, it will not take long to get it all fixed. When you are done formatting, the movement records should look similar to the samples shown below.

Example: (a database with 4 movement records - you may easily have hundreds of records)

```
cmtm0      "1xxxx67,PortalEast,XBG,FDDM&S,x,ECS AUS,empty,x,x,x,x,x,x"
cmtm1      "12345xx,ECS AUS,XBG,FDDM&S,x,Aus01,empty,x,8,PortalEast,load,concrete-blocks,x"
cmtm2      "1x3x5xx,PortalEast,XBG,x,301,Aus01,load,lumber,72,PortalEast,empty,x,x"
cmtm3      "xx3xxxx,PortalSouth,XBG,x,x,PortalWest,load,general -goods,x,x,x,x,x"
```

Now create the complete data-record table. The first line is the number of records in the database. Since the record numbers begin with 0 (zero), add one to the last record number for the total number of records.

The next line lists the ECS tracks. Make sure that you have them spelled with all caps and that the spelling matches the track marks on the route. Use a comma with no spaces to separate the names.

The next line lists the Local tracks and Destination tracks. Make sure you have them spelled exactly as on your route, including spaces. Use a comma with no spaces to separate the names.

The next line will be the switch to activate Destination Check. Enter a 1 to activate, a zero to deactivate.

The next line will be printtrackmarklist which is used to print a list of all track marks to Trainz jetlog.txt file.

If you are planning to use **Destination Check** make sure your destinations reflect the exact spelling of the track marks you place at each destination location. In the extension table you will find an item labeled printtrackmarks. If you set this value to 1 and then start a session, a complete list of the track marks will be printed to the jetlog.txt file. This will give you a printed source of the correct spellings of the track marks. Don't forget to set printtrackmarks back to 0.

The next lines will be your data records. Save this as your data-soup. It will be inserted into the config.txt file of the HTML-asset that you create for your route. If you are not using ConText, it is best to save it as a simple text file so that no formatting symbols get imbedded.



### Sample of extensions table with cmtmdata-soup-32711

```
extensions
{
  cmtmdata-soup-32711
  {
    numrecs          "5"
    ecstracks        "ECS AUS, ECS HUX"
    localtracks      "Local 1, Local 2, Aus01,Aus02,Aus03,Aus05,Aus05,Dal01,Dal02,Dal03,Dal04"
    destinationcheck "1"
    printtrackmarklist "0"
    cmtm0            "1xxxx67,PortalEast,XBG,FDDM&S,x,ECS AUS,empty,x,x,x,x,x,x"
    cmtm1            "1234567,ECS AUS,XBG,x,x,Aus01,empty,x,8,PortalEast,load,bricks-on-pallet,x"
    cmtm2            "1x3x5xx,PortalEast,XBG,x,301,Aus01,load,aluminum-sheets,72,PortalEast,empty,x,x"
    cmtm3            "xx3xxxx,PortalSouth,XBG,x,x,PortalWest,load,x,x,x,x,x,x"
    cmtm4            "1234567,PortalWest,XBG,x,AUS02,Dal01,load,beer-pallet,7,PortalWest,empty,x,x"
  }
}
```

### **Create Product List**

As you were creating your data records, you were also compiling a list of commodities or products that were loaded into your train cars. This list needs to be converted to a properly formatted table. It is quite simple. The first column is the name you have used in the data-base. The second column is the kuid number of the product or commodity as shown. DO NOT use the underscore character “\_” in any of your product names.

aluminum-sheets	<kuid2:81150:312:1>
automobile-engine	<kuid2:30671:9840820:1>
beer-pallet	<kuid2:30671:92203001:2>
bricks-on-pallet	<kuid2:44988:80020:2>
building-supplies	<kuid:32711:1220>

### **Creating a kuid-table**

Just add the product list to the kuid-table as shown.

```
kuid-table
{
  aluminum-sheets      <kuid2:81150:312:1>
  automobile-engine    <kuid2:30671:9840820:1>
  beer-pallet          <kuid2:30671:92203001:2>
  bricks-on-pallet     <kuid2:44988:80020:2>
  building-supplies    <kuid:32711:1220>
}
```

## Installing CMTM System Components

Before you install the CMTM System on your route, an HTML-asset must be created specific to your route.

1. **Create an HTML-asset specific to your route.**
2. **Copy and paste the extensions table you have created into the config.txt file of your HTML-asset.**
3. **Add your products list to the kuid-table to the config file of your HTML-asset.**

## Edit Route in Surveyor

Now you are ready to move to Trainz Surveyor. Three components are to be placed on your route; the CMTM Portal, at least one ECS trackmark and at least one Local/Destination track mark, each one named exactly as used in the database.

### **Placing Portals**

All Portals that emit freight cars needing a destination must be the CMTMPortal4. After placing a CMTMPortal4, name it exactly as used in the movement records. After the portals have been placed, set their parameters as follows: Do NOT check "Produce New Trains". DO check "Consume all Trains". These portals will be controlled by the Quick Portal Manager V3 Rule in the Session which we will discuss later.

Thanks to Maggs for his permission to modify and use his Re-Rail Portal. The feature I like with these portals is that they can emit a string of freight cars without an engine. This is perfect for simulating an interchange track with a foreign railroad.

I do not recommend using the re-rail feature. It can mess up your operations; the train that derails will be re-emitted from the portal that is enabled for this feature. So, you may derail a train in Huron, only to have it re-emitted miles away by PortalEast. When this occurs, every car in the train will be given a new destination.

### **Empty Car Storage (ECS) track placement**

The CMTM System uses specific places to store empty cars - the Empty Car Storage (ECS) tracks. These tracks are identified in Surveyor with a Track Mark that is named exactly as used in the data base. This name MUST have the first three letters to be ECS and the complete name must be spelled in all caps. Make sure the track is long enough to accommodate all your empty car storage needs. This track is usually a single ended track at the edge of the yard but a double ended siding or yard track will also work. You may have more than one ECS on your route. Each one should have a unique name.

The ECS tracks must also be listed in the CMTMSystem config.txt file's string table with spelling exactly as used on the route.

### **Local / Destination Tracks**

The CMTM System uses specific trackmarks on which to place cars in Surveyor that will be assigned a local destination on start-up. These are the trackmarks listed in the CMTMDataSoup under the localtracks tag. Each destination should have its own track mark. On start-up, any car located at one of the trackmarks listed in this category will be assigned a record that was created specific to this trackmark in the "**Train Name/LocalTrack**" field. In addition, it is helpful to have several tracks in a yard or elsewhere on your route labeled to identify a train ready for departure. To identify these locations, place a track mark on the track and name it "Local 1", "Local 2" etc or any name you choose.

## Planning and Creating Operating Sessions in Surveyor

When you create your session, you need to have some idea of the transportation plan for your route. How many trains will run which directions? What will these trains carry? Will there be passenger trains? Will there be way freights? Will trains be broken and switched in a yard? Will there be any interchange traffic? Check out [www.OPSIG.ORG](http://www.OPSIG.ORG) for more information on creating a transportation plan for your railroad.

Here is a minor question of what a transportation plan will address. When a way freight is switching towns east of the main terminal or division headquarters, does it leave all eastbound cars at the eastern most town it services for an east bound train to pick up or does it haul those eastbound cars back west to the main yard where they will be put into an eastbound train? A minor detail you may think, but an issue that needs to be addressed in planning the operations of your railroad.

Freight trains can be of four general types of trains that are emitted by a portal:

1. All cars for local destinations and no cars to Portal destinations. This could be thought of as a “turn”, coming from a location off your route to bring cars specifically for your route, dropping them in a yard and then returning to its origin with cars that are bound in that direction. Or it could be operated as a way freight, servicing industries as it goes.
2. Some cars for local destinations and some cars to Portal destinations. This could be a Thru freight with some local cars to drop-off for your route. The cars could be dropped in a yard or yards or the train could be operated as a way freight, servicing some or all of the industries for which it has cars.
3. No cars for local destinations - all cars have Portal destinations. This could be a Thru freight, dropping cars at various locations for pick-up by other trains and picking up cars that are bound for its destination Portal.
4. No cars for local destinations - all cars have the same Portal destination.. This would be a Thru freight that may go to its destination portal non-stop, or it may pick up other cars that are bound for its destination portal.

It is recommended that you give your trains a name so that specific cmtm records can be assigned to specific trains emitted from specific portals. If you do not name your train and use the **Train Name/LocalTrack** field in the cmtmdatabase, be aware that CMTM makes two passes through the train. On the first pass, it assigned Local records in the order they are listed in the cmtm database. On the second pass, any car not assigned a Local record will be assigned a Thru record for that specific Portal in the order in which they are listed in the cmtm database. If the train has 25 cars that require Thru records and there are only 10 Thru records in the database, CMTM will use those 10 records twice and the first 5 records a third time to give all 25 cars a destination.

Make sure that you include all specific cars for local traffic. Don't forget those empty home road cars or leased cars bound for the ECS track and the gon or flat that is needed by a local industry.

Here also is where you should consider a schedule for specific types of traffic such as putting livestock cars bound for the local packing plant in the early morning trains or running a late afternoon reefer express. Give these trains a name and a mission code.

Once you have a transportation plan, you can start to create the trains needed to implement the plan. A tool that will help with this task is your **Daily Portal Traffic Reports** that you created back on page 12. As you make up the various consists the **Daily Portal Traffic Reports** will show you what cars need to be included in the various daily consists that will emit from each portal to satisfy the needs of the local industries. If the train in which these cars are to be included is a local, then no other cars are needed in the train. If it is a through freight that will be dropping off

local cars, add additional cars to the consist. When the train is emitted from the Portal, cars that do not get a local destination will be assigned a Thru destination based on your Traffic Management plan.

When you create these consists in Surveyor, it enables you to see the locomotives and cars you are putting in the train and check to see if the cars are commodity enabled. Save the consist with appropriate names such as:

PortalEast715Day1 (arrives via PortalEast at 7:15 on day 1),  
PortalWest #201- 4 (arrives via PortalWest as train #201 on day 4)  
PortalCNWDay3, (arrives via PortalCNW on day 3)  
etc

If you are running 6 freight trains each day that carry local traffic or that need to be switched in any way, there could be as many as 42 different consists that are created in this step for a full week of operations.

Thru records are assigned to any type of freight car, so making up the part of a train that will use Thru records, it is not necessary to match car types.

## Installing and Editing Session Components in Surveyor

### **CMTMSystem4 Install Rule**

Open the Edit Session window and add the CMTMSystem4 Install Rule. Then edit the rule and select the appropriate HTML-asset for your route that contains the extension-table with the CMTMData-Soup appropriate for this session.

### **Quick Portal ManagerV3 Rule**

A big thanks to Pguy for creating and modifying these valuable assets to work with CMTM. Open the Edit Session window and add the following Rules. QuickDrive Rule V2, Quick Portal ManagerV3 and ConsistDataHandlerV2.

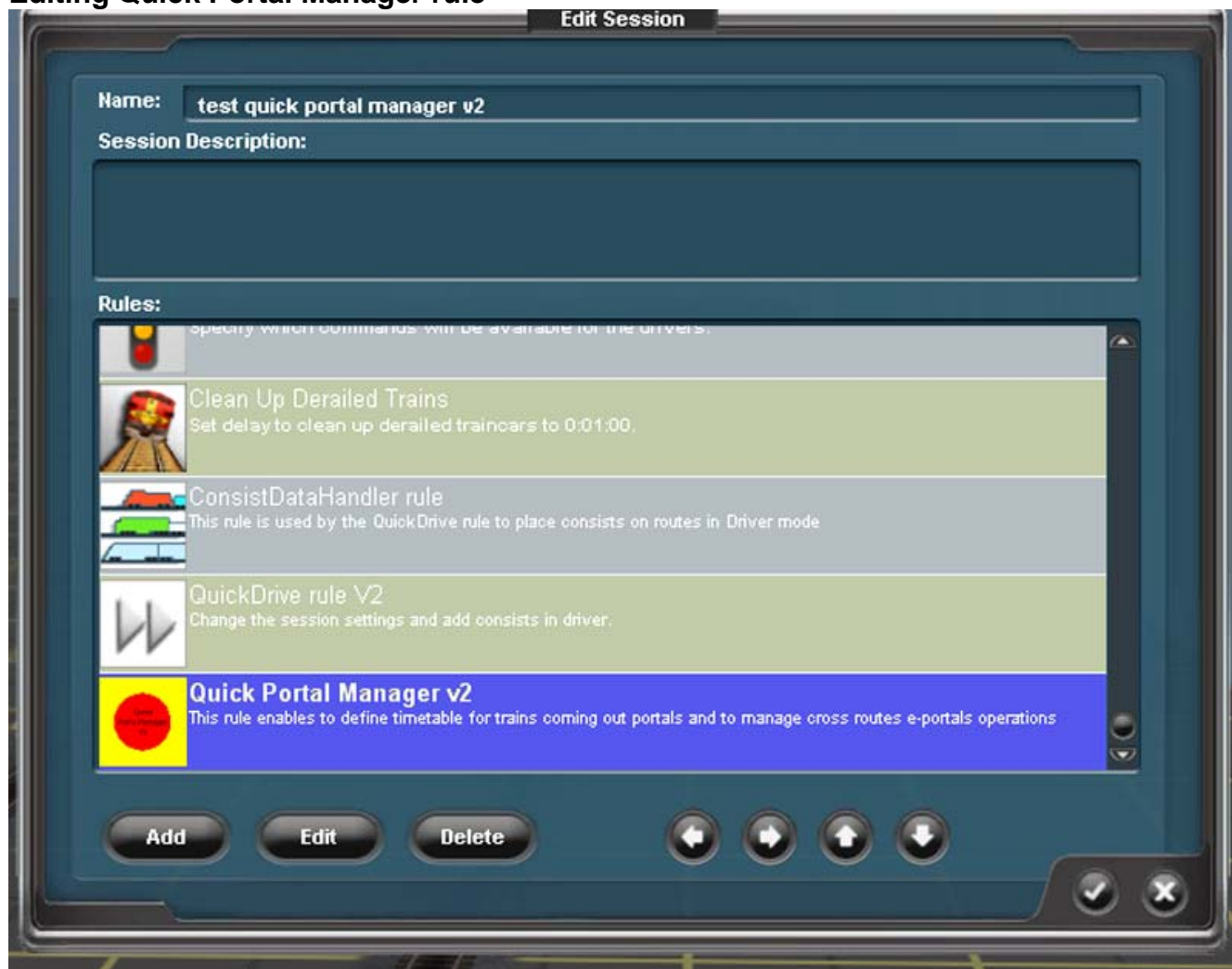
In Surveyor, select Options under the Main Menu and make sure that Global Consist Library V2 and Quick Portal Manager Stack Library have self installed.

### **Adding Quick Portal Manager rule to current session**



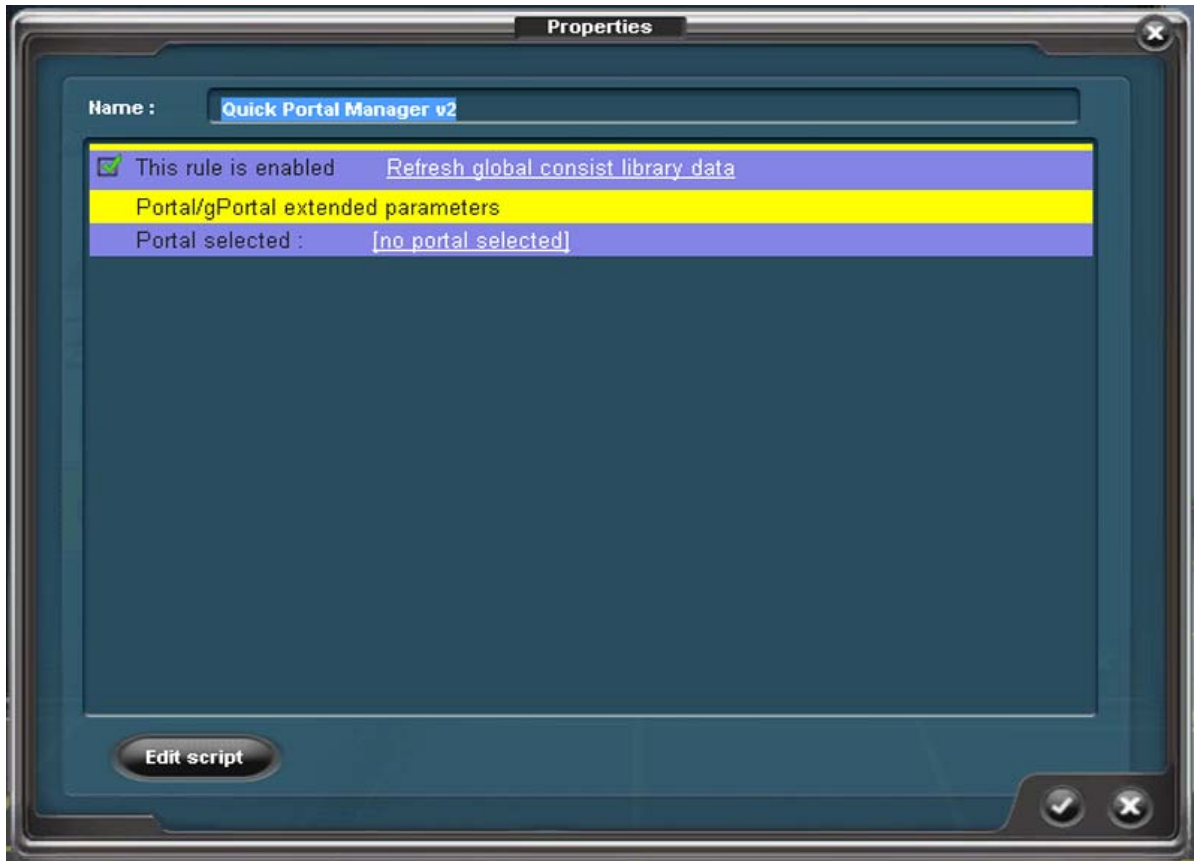
First action is to add Quick Portal Manager rule to the list of current session rules. Edit current session. Click on session rules editing. Click on add button. Select Quick Portal Manager V3. Click on OK button.

## Editing Quick Portal Manager rule



Select Quick Portal Manager rule in session rules editing list. Click on edit button.

You will then get the Quick Portal Manager setup main screen with no initial data the first time you Edit.



First line of setup contains a checkbox (which is default checked) to enable the rule at run time.

This rule belongs to the Quick xxx family which allows modification of the initial setup at run time in Driver mode. The enable/disable checkbox is there to allow suspension of all portals managed by this rule. A checkmark in the box makes the rule active, no checkmark suspends operations of the portals.

The [refresh global consist library data](#) link causes the Global Consist library to refresh its definitions of consists. This action also reloads the surveyor list making all the surveyor saved consist list changes available to Quick Portal Manager rule. By default the Global Consist library loads the surveyor list at startup but the surveyor saved consist list updates are not available to this Rule until you use this link to refresh the library.

By clicking on the field [\[no portal selected\]](#) the rule will display the list of all portals available in the

current route and session, from which you can then select the portal you want to edit.

The rule can manage as many portals as needed but only one portal is displayed at a time. To edit another portal, just click on the portal name and select the new portal name you want to edit.



The image above shows an example of a setup made for a portal named «PortalSouth» on the route.

The queues setup are designed for consist transfer through portals between routes and sessions and are not used with CMTMSystem3 Skip these two queue setups leaving them blank.

The default schedule for input trains allows the definition of default driver commands for incoming trains



from the portal that don't have driver commands defined in their own setup. You can enter any driver commands in this area in the same way you enter driver commands in driver mode or in driver setup rule. If you have added driver commands to the trains entered below, these commands will not be used.

You have two options for entering trains to be emitted. These are scheduled and unscheduled. An unscheduled train is defined complete with driver commands but will not be emitted until it is given a scheduled time, which can be added in Driver (or Surveyor) mode at any time. To add an unscheduled train, click on <<Insert new schedule>> on the yellow bar labeled "no schedule area".

In Surveyor, to enter trains with a schedule time, click on <<Insert new schedule>> on the yellow bar labeled "Today's Schedule(s)". In Driver mode, an additional yellow bar is added labeled Tomorrow's Schedule. In Driver mode, Today's schedule contains only schedules entries from current game time until midnight and all the scheduled entries between 00:00 and current game time are displayed in Tomorrow's schedule.

Each schedule entry contains first a checkbox to enable/disable the entry.

The blue cross icon is to delete the current entry.

The + or - icon is to reveal or to hide scheduling detailed setup. To display more lines in the edit window, only one entry is detailed at a time. When you click on + to look at the details on an entry, others entries details are hidden.

Time scheduled entries contains the time for the schedule in format hh:mm. When you edit the schedule time, the entries are automatically sorted and displayed in ascendant scheduled time. When edited if you leave the scheduled field empty, the entry becomes a "not scheduled entry". If on a not scheduled entry, you click on the [No schedule] field, you will be asked for the new schedule time to setup. If you enter data here, the entry will become a scheduled entry and will be moved from the "no schedule area".

Train name and train mission code may be used by CMTMSystem3. If you want specific records applied to a specific train, then give the train a name. This name should be the same that is used in field 5 of the CMTM database. It can be any name, including a number. Many railroads use numbers to name their trains. *If you are not using a train name, you must enter an "x"*.

The train mission code is used to identify trains that use their own thru records rather than using the normal pool of thru records. *If there is no mission code, you must enter an "x"*. Any other entry will be considered valid and will force the system to assign only thru records with this train name.

The last setup parameter on the first line is the recurrence period which, when clicked, will display an input box where you can enter the recurrence period as hh:mm. An empty field entry means no recurrence period and is displayed as «scheduled once». 24:00 means a 24 hours recurrence which is displayed as «schedule every day». And any value between 00:01 to 23:59 can be entered as the recurrence period.

When a recurrence period is defined, after the train is emitted, the recurrence period is added to the current time to reschedule the entry time. This mechanism has been designed to emit a train every 10 mn or every hour or every day ... You can setup whatever recurrence period you wish.

Other setup parameters can only be set when schedule details are shown using the + icon to reveal all the details of an entry.

On the second line of the detailed entry, click on [\[no driver\]](#). A pop-up window will display the available drivers list from which you can select your choice of drivers by clicking on the driver name. If no driver is selected a random available driver will be assigned to the train when emitted.

Driver commands are then entered into the familiar rectangular box.

The red c in a blue box icon means «clone entry». When you click on it, an input box is displayed so that you can enter a new schedule time. The current entry will be cloned with all its setup parameters with the new time assigned.

The third line is important as it sets the consist that will be emitted. Quick Portal Manager V2 or V3 uses the Global Consist Library either the default one from Auran/N3v for V2 or the new enhanced one from pguy for V3. In both cases, click on [\[no consist list selected\]](#) to chose which consist list is to be used. Then click on [\[no consist selected\]](#) to select the consist name. Both libraries offer surveyor saved consist list access through the list named [surveyorlist](#).

### **Multi-day operations - Scheduling consists based on day of week**

If you are planning multiple days of operations for your session, the QuickDrive V2 rule must also be used in the session. In Quick Portal Manager you can choose between [monoconsist](#) where you schedule the same consist every day of the week for a given time slot or [multi consists](#) where you can schedule a different consist for each day of the week for a given time slot in the schedule. If for any day in the week no consist is setup in the entry, then there will be no train schedule for this day of the week in this time slot. Simply click on the default [monoconsist](#) link to toggle between these two choices.

If you have modified any consists in Surveyor that are used in QuickPortalManager, make sure you then edit QuickPortalManager by first clicking on [Refresh global consist library](#) and then selecting the [Surveyor List](#) and [no consist selected](#) links to re-enter the updated consists.

### Place Cars and Locomotives on Route

Place cars in yards, industries, ECS Tracks and the Local Track. Cars placed on yard tracks or any track that does not have a “Local” track mark will be assigned an off route destination at start-up. Thru records will be used so the destinations will be any portal you have installed.

Cars placed on the ECS tracks will not be given any destinations.

Cars placed on the Local and Industry tracks will be assigned local destinations at start-up using records that have the track mark name in the “train name/track name field. This feature can be used to makeup trains in Surveyor that are ready to make their run when the session starts.

## Using in Driver

When a Session starts in driver, a window is displayed that gives you a choice of 7 different days to begin your operations. You can start on a Wednesday and run the rest of the days of the week. Just save your session and then restart it using the Saved Sessions menu. When you select a day by clicking on it, CMTM System 3 goes thru a set-up routine and assigns destinations to cars on the route.



## Car Destination Window

When you left-mouse-click on a train car, the camera focuses on that train car. With CMTM System 3 installed, this also causes a window to be opened on the left side of the display. This window gives the reporting mark, car number, destination and load status of the vehicle on which you clicked as well as the same data of all the cars in the train in which the car exists. The data for the car on which you clicked will be in **bold** type. If the train car is not a freight car, it is so noted. The contents of the window can be scrolled if needed. In Driver Mode, if you press ESC, this CMTM window will close, but will open again when you click on a new train car.

Mark	Car No.	Destination	-
<b>Locomotive</b>			
ATSF	31048	Frt House D2	L
B&LE	81311	Frt House D5	L
CNJ	23623	Frt House D8	L
D&H	20084	Frt House D11	L
ERIE	86755	Frt House D12	L
FDDM&S	12345	Frt House D15	L
GTW	516615	Frt House D18	L
ICG	414187	Frt House D3	L
KCS	21076	Frt House D4	L
DL&W	55099	Frt House D6	L
MILW	8745	Frt House D9	L
NH	36403	Frt House D13	L

At the top of the window are four user input choices - “Click when car is delivered”, “Click to add record to vehicle”, “Find vehicles ready for pick-up” and “Turn switchlist display on/off”.



### Delivering a Car to an Industry

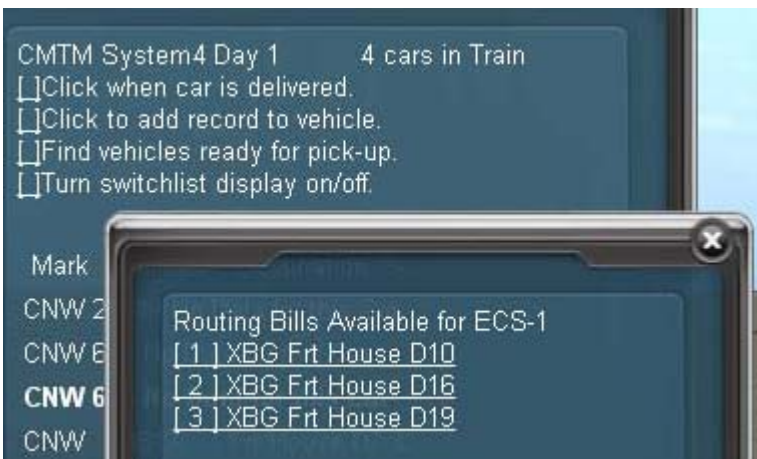
Although you may click on this first option at any time, it is only appropriate when the car has reached its destination. If you have enabled Destination Check and click on Delivered with the car not at its proper location, the Message window will display “Car not at proper location” and the does not record the delivery as having been made. If Destination Check is not enabled, the Message window will display Delivery Noted.

When delivery has been noted, CMTM records the time of delivery. If you select the car again, the window will tell you how much time is left until the car is loaded or unloaded. If the time has elapsed when you click on the car, the next destination will be displayed.

If you couple to a vehicle that is in the process of loading/unloading, the process will be stopped, the time left will be noted and a message will appear listing any cars that are in the consist that have had their loading/unloading process interrupted. To continue the load/unload process, the cars must be returned to their proper destination and again noted that they have been delivered. Once this is has been done, the load/unload process will continue from where it was interrupted.

### Add Record to Vehicle

The Empty Car Storage tracks should be checked each day to see which cars are required by the various industries. When you click on an ECS car, no destination will be listed for that car. Clicking on the “add record to vehicle” option is functional only when the car is located on an ECS track. Given that, a new window will pop-up that displays all Car Movement records that are available for that type of freight car at that ECS location. Upon clicking on a displayed record, it is attached to the current freight car.



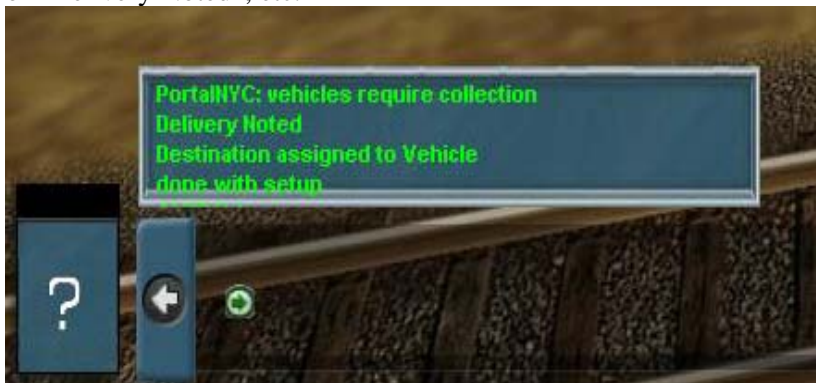
## Ready For Pickup

This user selection opens a window that lists all cars that have complete their load/unload process, but have not yet been pick-up. When one of the cars listed is coupled, it will be removed from the list.



## Trainz Message Window

Keep your Trainz message window open and watch for confirmation that various selections have been performed or why they have not been performed such as “Selected vehicle is not a freight car” or “Car has off road destination” or “Delivery Noted”, etc.



Now, all that work pays off. Every freight car will have a destination and it is up to you the player to make sure they all get to their destinations in a timely manner. Isn't that what railroading is all about?

Have fun and enjoy.

## Definitions

Beginning Location- the place on the map where an in service freight car begins its journey in your railroad. This is either a Portal or an Empty Car Storage track.

CMTMDatabase - a listing of records with each record containing the movement details of one freight car (See Movement Record Spreadsheet)

Daily Portal Traffic Report - a listing of the local cars that will be emitted from a specific Portal for a specific day. Used to create consists to be emitted from the portals.

Destination - the location on the map to which the train car is to be delivered. Destinations are listed in the database records. The last destination in any record must be either an ESC track or a portal.

Empty Car Storage - a track identified by a track mark where empty home-road cars or leased cars for local industries are stored. There may be more than one Empty Car Storage (ECS) location on the route.

Foreign road - the name of any railroad that is not the home road.

Home road - the name of the railroad which the Trainz Route represents

Local Record - a car movement record that has as it's first destination a location that is not a portal.

Movement Records Spreadsheet - this is a listing of all the car movements in a spreadsheet format. Any spreadsheet program that can save the data in a comma delimited text format will work. This is commonly known as a .csv format.

Portal - Portals used in CMTM System are CMTM Portals. In addition to acting as a standard portal, they can consume or emit a string of cars without an engine. They also have a built-in interface to the CMTM System so that every freight car emitted has a specific movement record attached and every car consumed has its record deleted.

Thru Record - a car movement record that has a beginning location as a portal and has a portal for its first destination.

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## Appendix A - Discussion of interchange operations.

Interchange operations represent the delivery and pick-up of freight cars between two or more railroads. For purpose of this discussion, let's assume that your railroad is the home road and that you interchange cars with one other railroad (foreign road) at this particular location on your route. I prefer to use the minimalist method - have a string of cars emitted from a portal without a locomotive. When they are emitted, they stop a short distance from the beginning of the portal, depending on how long the string of cars may be. This event usually occurs when you are elsewhere on the route so no one is going to see these cars magically appear. They will be setting there, waiting to pick up when the train that services the interchange track arrives.

The problem comes when you drop cars off at the interchange track. With the minimalist approach, there are no tracks or space to emit a foreign road locomotive to couple them up and then depart. The cars must get "kicked" into the portal by the driver that delivers them. This switching practice is usually discouraged on most railroads. However, I have found that uncoupling the cars from the engine at 20mph and then cutting the throttle works if the interchange track is level. I also recommend placing a fence post or some other scenery item to mark the entrance of the portal (point of no return for the locomotive).

The method probably preferred by most Trainz creator/operators is to have sufficient track to accommodate a foreign road train, complete with locomotive to be emitted and under AI control, set-out cars for the home road and pick-up any cars there might be for the foreign road. This requires a lot more work in the design and set-up of the route. If that is your thing, then enjoy yourself. I just wanted to present my minimalist interchange technique.



## Appendix B - Trainz Category Class Codes

Freight car designations as listed in the Trains Content Creator's Guide 2006, Chapter 11, Appendix A.

XA	Auto transporter	XR	Refrigerated
XAA	Open sides	XRI	Ice chilled
XAB	auto box car	XRM	Mechanically chilled
XB	Box car/covered van	XS	Special
XBD	Dangerous goods	XSN	Novelty
XBG	General service	XSU	Unclassified
XBI	Insulated		
XF	Flat	XT	Tanker
XFA	articulated	XTA	Domeless
XFC	Intermodal	XTS	Single dome
XFD	Depressed center	XTM	Multiple dome
XFH	Heavy duty		
XFM	General service	XV	Ventilated car/louvered van
 		XVG	General service
		XVP	Produce service
XG	Gondola/open wagon		
XGB	Bottom dumping		
XGC	Combination bottom/end/side dumping		
XGE	End dumping		
XGR	Rotary dumping		
XGS	Side dumping		
XGT	Covered		
XH	Hopper		
XHB	Bottom dumping		
XHC	Combination bottom/end/side dumping		
XHE	End dumping		
XHR	Rotary dumping		
XHS	Side dumping		
XHT	Covered		
XI	Foundry		
XIB	Bottle/torpedo cars		
XIT	Tipper/slag cars		
XL	Livestock		
XLA	Single deck		
XLC	Multiple deck and convertible		
XLH	Horse box		